

APPLICATION
FOR
UNITED STATES LETTERS PATENT
TITLE OF INVENTION
TOOL SECURING APPARATUS AND METHOD

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CROSS-REFERENCE TO RELATED APPLICATION

[0001] n/a

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] n/a

FIELD OF THE INVENTION

[0003] The present invention relates to an apparatus for mounting tools and more particularly to an apparatus for temporarily and securely mounting tools and other objects to a planar surface.

BACKGROUND OF THE INVENTION

[0004] In the restaurant industry, there exist many devices used in the kitchen to open cans, prepare foods and slice products. It is vital that the food preparation area of eating establishments be maintained with the highest sanitary standards. There exist a number of industry standards regarding the cleanliness of food preparation areas that eating establishments must comply with. It is also important that tools used in these areas be easy and simple to use and adaptable to the present conditions of the area and its surroundings.

[0005] Permanently mounting a tool or the apparatus that mounts a particular tool compromises sanitation of the area surrounding the tool and the mounting apparatus. For example, when a vegetable slicing tool is permanently mounted to a table top via bolts or the like, bacteria may eventually develop in the area near the permanently mounted tool. Owners of eating establishments will not likely unbolt and remove the tool but instead simply opt to keep the tool in its present location. This may lead to unsanitary and unhygienic conditions.

[0006] By permanently mounting a tool or its mounting apparatus in one location, at least two problems are created. First, because the tool cannot be moved to another location, all aspects of

the use of the tool must be performed in only that location. The tool and/or mounting apparatus can be intrusive by not allowing other tasks to be performed at the same location. Often, kitchen workers have a limited space in which to perform their tasks. A permanently mounted tool or tool mounting apparatus would likely be an encumbrance. Second, the tool cannot easily be removed to facilitate cleaning and proper sanitation that is required on a regular basis to comply with industry (cleanliness) standards. Due to its permanent mounting, the tool or mounting apparatus will accumulate bacteria on the work surface that cannot be effectively cleaned. Recent studies done by food service cleaning and maintenance product companies indicate that permanently mounted tools and associated mounting hardware have the highest level of contamination of any item in the locations surveyed.

[0007] It is therefore desirable to provide an apparatus for temporarily mounting tools or other objects to a planar surface that is sturdy, able to withstand high levels of torque and other forces applied to the apparatus from the tool and that can easily be removed from its present location on the planar surface and remounted elsewhere to allow for proper cleaning around the tool area, better utilization of space, and the ability to continue using the tool while the previous mounting location is being used.

SUMMARY OF THE INVENTION

[0008] The present invention advantageously provides an apparatus that allows for the temporary mounting of tools upon a table or counter in order to avoid the need to permanently affix tools such as vegetable slicers and the like onto the table or counter, which may lead to unsanitary conditions and which may limit optimal usage of the table and surrounding area.

[0009] According to one aspect of the present invention, an apparatus for securing a tool to a planar surface is provided. The apparatus comprises a planar surface securing plate having a first

member and a second member substantially perpendicular to the first member, wherein the first member has an upper surface and a lower surface opposite the upper surface. The lower surface further comprises temporary planar surface affixing means such as, for example, one or more suction cups linearly disposed upon the lower surface of the first member. The second member terminates in an arcuate member adapted to engage a downwardly extending edge of the planar surface.

[0010] According to another aspect of the present invention, the apparatus for securing a tool to a planar surface comprises a planar surface securing plate having a first member and a second member substantially perpendicular to the first member. The first member includes an upper surface and a lower surface opposite the upper surface wherein the lower surface further comprises temporary planar surface affixing means such as, for example, one or more suction cups linearly disposed upon the lower surface of the first member. The second member terminates in an arcuate member adapted to engage a downwardly extending edge of the planar surface. A tool-securing track is also provided. The securing track is affixed to the upper surface of the first member of the planar surface securing plate, and is adapted to receive and secure the base of the tool.

[0011] According to yet another aspect of the present invention, an apparatus for temporarily securing a tool to a table is provided and comprises a plate member having a first component comprising an upper surface and a lower surface opposite the upper surface, wherein the lower surface includes at least one suction cup to couple the plate member to the top of the table, and a second component substantially perpendicular to the first component, wherein the second component terminates in an upwardly-extending concave lip thereby defining a channel. The channel is adaptable to receive and engage a downward extending table edge. A tool-securing

track is also provided. The tool-securing track is affixed to the upper surface of the first component of the plate member and receives the base portion of the tool, securing it therein.

[0012] According to another aspect of the invention, an apparatus for temporarily securing a tool to a table is provided comprising a mounting board having an upper surface and a lower surface. The lower surface of the mounting board includes one or more suction cups or other temporary affixing devices. A tool-securing track is affixed to the upper surface of the mounting board for receiving and securing the tool.

[0013] According to still another aspect of the invention, a method of temporarily securing a tool to a planar surface is provided. The method comprises the step of removably affixing a securing plate to the planar surface. The securing plate is comprised of a first member and a second member substantially perpendicular to the first member. The first member has an upper surface and a lower surface opposite the upper surface, wherein the lower surface further comprises temporary planar surface affixing means and the second member terminates in an arcuate member adapted to engage a downwardly extending edge of the planar surface. The tool is then placed directly upon the upper surface of the first member. The method may further comprise affixing a tool-securing track to the upper surface of the first member of the planar surface-securing plate, and inserting the base of the tool within the tool-securing track.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] A more complete understanding of the present invention, and the attendant advantages and features thereof, will be more readily understood by reference to the following detailed description when considered in conjunction with the accompanying drawings wherein:

[0015] FIG. 1 is a perspective view of the tool securing apparatus of the present invention;

[0016] FIG. 2 is a perspective view of the tool securing apparatus of the present invention with a cutting tool mounted on the tool securing track;

[0017] FIG. 3 is a side view of the tool securing apparatus of the present invention secured to the top of a planar surface via suction cups affixed to the underside of the plate;

[0018] FIG. 4 is an exploded side view of the tool securing apparatus of the present invention;

[0019] FIG. 5 is a bottom view of the tool securing apparatus illustrating the planar surface securing means extending from the underside of the plate;

[0020] FIG. 6 is a perspective view of an alternate embodiment of the present invention;

[0021] FIG. 7 illustrates the alternate embodiment of the present invention in use;

[0022] FIGS. 8A-8I illustrate the tool securing apparatus of the present invention adapting to differently shaped table edges;

[0023] FIG. 9 illustrates an alternate embodiment of the tool securing apparatus of the present invention incorporating a mounting board; and

[0024] FIG. 10 illustrates the alternate embodiment of the present invention with a cutting tool mounted on the tool securing track.

DETAILED DESCRIPTION OF THE INVENTION

[0025] The present invention is a tool securing apparatus that conveniently allows a tool such as a vegetable slicer commonly used at eating establishments to be temporarily mounted and secured on a planar surface such as a table or a counter, and then, if desired, removed and relocated to temporarily mount the tool at a different location, or at the same location after the location has been cleaned. Use of the present invention advantageously facilitates work space

clean-up to prevent the unsanitary buildup of bacteria, which may accumulate under or around a cutting tool when the tool is permanently mounted to the table or to a tool-mounting apparatus and optimizes the use of table space, which is of extreme importance in areas of limited space such as kitchens in eating establishments.

[0026] Referring now to the drawing figures in which like reference designations refer to like elements, there is shown in FIG. 1 a tool securing apparatus constructed in accordance with the principle of the present invention designated generally as 10. Tool securing apparatus 10 is comprised of a first member 12 and a second member 14 extending therefrom. The second member 14 is substantially perpendicular to the first member 12. Apparatus 10 is comprised of a sturdy yet pliable material, preferably metal or a high strength polymer, which can be sufficiently shaped in a variety of configurations in order to adapt to various table and table edge shapes and dimensions. Members 12 and 14 are preferably formed from one piece of material. In the preferred embodiment, a piece of metal is bent at a predetermined angle to form both members. In an alternate embodiment, first member 12 is hingedly coupled to second member 14. In this example, each member may also be comprised of metal or may be comprised of different material. A hinge or other coupling device may be used to connect the members while allowing each member to be adjusted at a specific angle in order to accommodate different table edge configurations (to be discussed below).

[0027] Upon the upper surface of first member 12 is a tool-securing track 16 secured thereto. Track 16 may be secured to member 12 via one or more bolts 18. Screws, nails or any commonly used securing devices may also be used. Track 16 is preferably comprised of a pair of horizontal rails 20 shaped to defining a channel 22 within each rail. Channels 22 receive the base 30 of a tool 26 such as a vegetable slicer, as shown in FIG. 2.

[0028] It is noted that the track 16 is an exemplary tool-mounting apparatus, and one of many that may be used with the present invention. It is contemplated that one of ordinary skill in the art would understand that other tool-mounting devices may be mounted on apparatus 10. By mounting tool-mounting apparatus 16 upon apparatus 10 instead of directly upon the table, the present invention avoids the necessity of permanently mounting the track onto the table, which prevents the moving of the apparatus and tool to another location on the table, leading to the possibility of unsanitary conditions due to food and bacteria buildup.

[0029] Referring again to FIG. 1, a series of suction cups 24 are disposed along the bottom surface of member 12. Although the preferred method of temporarily affixing apparatus 10 to a planar surface such as a table is via one or more suction cups 24, other well-known temporary affixing means may be used, such as hook and loop fasteners (VELCRO®), adhesive material that allows for the later removal of apparatus 10, and other well-known temporary affixing means. Suction cups 24 allow for apparatus 10 to be securely yet removably fastened to a planar surface. Cups 24 may be affixed to the bottom surface of member 12 in a variety of ways. For example, screws 36 may be used to fasten suction cups 24 directly to member 12. Instead of screws, suction cups 24 may have adhesive directly on their non-bonding side, to enable them to adhere directly to the bottom of member 12. Further, an adhesive or bonding “mat” of suction cups, may be affixed to the bottom surface of member 12. Adhesive or bonding material such as glue may be used to attach the side of the mat without the suction cups to the bottom surface of member 12, while the opposing surface of the mat containing one or more suction cups are exposed to and attached to the planar surface. The invention is not limited to how the suction cups adhere to member 12.

[0030] Suction cups 24 prevent apparatus 10 from lifting off of the planar surface due to the vertical forces imposed by tool 26 when in use. However, cups 24 do not provide a permanent attachment to the table and after the tool 26 has been used, apparatus 10 may easily be moved from its present location by simply grasping member 12 and lifting upwards to release suction cups 24 from their attachment to the planar surface.

[0031] In its preferred embodiment, the present invention contemplates use of one or more suction cups 24 in a variety of positions along the underside of member 12. Implementing a large member 12 to hold a large tool may require more and/or larger suction cups 24 than would a member 12 used to hold a smaller, lighter tool. The orientation shown in FIGS. 1 and 5, for example, is just an example of the suction cup layout. Once again, the present invention contemplates various types of temporary affixing devices other than suction cups.

[0032] FIG. 2 illustrates apparatus 10 in use with a vegetable slicer 26 commonly used in restaurants. Please note that apparatus 10 may be used with a wide range of tools, for example, cutting tools as well as non-cutting tools. Can-openers, vegetable slicers, and food processors are just a few examples. Further, apparatus 10 may be used to secure not only the tool but also to secure accessories to the tool itself. Therefore, use of the word “tool” in this application will also be deemed to include “tool accessories”, that is, parts that are used in conjunction with the tool itself. FIG. 2 shows the tool being secured to be, as an example, a vegetable slicer 26. Slicer 26 is used to slice various vegetables so that they may be used on certain dishes. The rotation of the handle 28 tends to impart both transverse (vertical) and lateral (horizontal) forces upon apparatus 10. As described above, suction cups 24 prevent apparatus 10 from lifting up during use of tool 26. The base 30 of tool 26 is maintained within channels 22 during the use of the tool.

[0033] FIG. 3 is a side view of apparatus 10 temporarily secured upon a table 32. Second member 14 of apparatus 10 can be seen in its preferred shape. Member 14 is arranged to extend and curl under the edge of the planar surface or table. A typical table or countertop includes an edge or lip 40 having a thickness A. Member 14 terminates in a C-shaped member 15 that serves to hook underneath and around the table edge 40. Therefore, in addition to suction cups 24, which also arrest vertical lifting of the apparatus, C-shaped member 15 of second member 14 prevents apparatus 10 from moving forward or backward laterally across table 32 due to the horizontal component of the force exerted by the user through tool 26 during use. To further prevent unwanted lateral motion of apparatus 10, a set screw, nail, bolt or other locking device (not shown) can be inserted through member 14 and table edge 40. Therefore, apparatus 10 includes both vertical securing components such as suction cups 24 and lateral securing means components such as C-shaped member 15 to prevent unwanted vertical and lateral motion, respectively, of apparatus 10.

[0034] Member 14 is of sufficient dimensions to account for the length of the table edge 40 as illustrated in FIG. 3. A wider table edge 40 having a wider dimension B, would call for a wider member 15. Because a table typically has uniform edge dimensions around its perimeter, i.e. uniform table edge length 40, apparatus 10 may be constructed with a member 14 having a length equal to the length of the downward extending table edge 40 plus enough material to wrap around the lower end of lip 40 in order to prevent apparatus 10 from moving laterally along table 32 during use of tool 26. This material length is equal to the sum of horizontal extension member 15 and vertical extension member 17 and may vary due to other factors such as length of member 12, the weight, dimensions and power of tool 26 and track 16, as well as the overall strength of the material comprising apparatus 10.

[0035] FIG. 4 is an exploded, side view of the preferred embodiment of the present invention. Bolts 38 may be used secure track 16 to member 12 of apparatus 10. It is contemplated that track 16 may be placed at any location along member 12. This depends upon the size of tool 26 and the overall length of first member 12 and second member 14. Suction cups 24 or any other contemplated temporary affixing devices may also be disposed at various places along the underside of member 12. As noted above, the number and location of temporary table affixing devices are related to the effectiveness of apparatus 10 in counteracting the vertical forces exhibited by tool 26. The width of C-shaped member 15 may vary depending upon the thickness A of the table edge.

[0036] FIG. 5 shows the underside surface of apparatus 10 and in particular, first member 12. Six suction cups 24 are arrayed along the outer region of member 12 in order to provide uniform mounting upon table 32. Bolts 38 may include screws, nails or any other securing device to secure track 16 to member 12.

[0037] FIGS. 6 and 7 show an alternate embodiment of the present invention and illustrate the adaptability of apparatus 10. Here, a sleeve 42 is affixed to the second member 14 of apparatus 10. Sleeve 42 may be made of the same material as members 12 and 14 or of different material. Sleeve 42 is sized to hold a portion or accessory of the tool that is either mounted upon track 16 or is resting directly upon first member 12. For example, sleeve 42 may hold a can opener shaft, of the kind shown in FIG. 7. In FIG. 7, a can opener 48 is used in conjunction with apparatus 10. Can opener shaft 46 is inserted within sleeve 42 and optionally secured therein via set screws or other locking devices (not shown). Can 44 is placed directly on member 12. The can opener, now secured within sleeve 42, can be used to open can 44. Note that in this embodiment there is no need for track 16 as the tool shaft 46 may be mounted within the sleeve 42 and the can to be

opened simply placed directly on apparatus 10. The handle of the can opening device can then be lowered to engage the can lid and insert the blade into the can, and turned to open the top of the can. Apparatus 10 allows for the use of a variety of different types of tools without the need to permanently mount the tool upon the table.

[0038] The can opener depicted in FIGS. 6 and 7 is just an exemplary tool that may be used with the present invention. Sleeve 42 need not be of the rectangular shape shown in the figures, but may instead be of varying shapes and dimensions to accommodate different tool shafts or tool parts. If it is desired to move the tool and apparatus 10 after use either to clean the area and re-mount the apparatus, or to move the apparatus to a different location to optimize space on the table, one simply removes the tool shaft 46 from within sleeve 42, grasps first member 12 either from underneath the plate or on the side of the plate, which releases cups 24 from table 32, and releases C-shaped member 15 from the table edge.

[0039] FIGS. 8A through 8I illustrate various table edges 40. Second member 14 of apparatus 10 can be adapted to extend under and around edge 40, depending on the shape and dimensions of the table edge. For example, in FIG. 8A, a curved, concave table edge 40 can be seen. Second member 14 can be sized to extend well below edge 40. C-shaped member 15 is also sized to extend beyond the radius of curved edge 40 to allow wrap-around member 17 to extend upwards toward table 32, but clear of edge 40. Wrap-around member 17 therefore prevents apparatus 10 from pulling laterally off of table 32, since any lateral force upon member 17 will force it to abut against edge 40, thereby preventing any further lateral movement and preventing apparatus 10 from moving any further. The other figures, 8B through 8I, illustrate various exemplary adaptations of second member 14, C-shaped member 15 and vertical wrap-around member 17 in order to accommodate different table edge shapes. In each case, the shape

and dimensions of second member 14 are altered to accommodate different table edge shapes.

Although, in the preferred embodiment, second member 14 is substantially perpendicular to first member 12, second member 14 may be angled in such a manner as to adapt to different edge configurations.

[0040] Referring now to FIG. 9, an alternate embodiment of the present invention is shown. In this embodiment, a mounting board 52 is mounted to tool securing track 16. Suction cups 24 are mounted to the underside of board 52, to prevent unwanted lifting of the apparatus 10 when the tool is in use. Mounting board 52 is comprised of a sturdy material such as HDPE (High Density Polyethylene) or other materials that have excellent rigidity, resistance to stress, and high impact strength. Preferably, board 52 has a coating on its upper and lower surfaces that prevents mildew and bacteria buildup. Microban® is one type of antimicrobial coating. Although other similar coatings may be used. FIG. 9 shows suction cups 24 arranged about the outer corners of the underside of board 52. However, cups 24 may be arranged in any practical configuration and may be of varying sizes. Preferably, in the embodiment illustrated in FIG. 9, suction cups having a larger circumference are used. Because of the absence of a downwardly extending second member 14 as shown in FIG. 1, larger suction cups are needed to provide a more secure attachment to the top of table 32 and prevent unwanted motion during use of the cutting tool. In a further embodiment, a downward extension member, similar to the one shown in FIG. 1 may be affixed to the edge of board 52 and secured to the lip of the table to further prevent unwanted lateral motion of apparatus 10.

[0041] FIG. 10 illustrates the embodiment shown in FIG. 9 with a cutting tool 26 now secured within securing track 16. Securing track 16 is mounted to mounting board 52 via a plurality of securing devices 18 (shown in FIG. 9), which could be screws, bolts or the like.

Likewise, suction cups 24 are mounted to board 52 via securing screws 36. Again, these could be screws, bolts or any comparable mounting device.

[0042] Mounting board 52 serves several purposes. First, it provides a sturdy mount for the cutting tool 26. Board 52 is longer and wider than first member 12 and therefore provides a more sturdy support for the user. Secondly, the wider area allows more space for additional suction cups and/or larger suction cups. Perhaps the most important feature of mounting board 52 is its ability to prevent bacteria and mildew from accumulating on or near the base 30 of cutting tool 26. The Microban[®] surface of board 52 further prevents bacteria buildup. To avoid the buildup of bacteria, the entire device 10 can be easily moved by lifting board 52, to which cutting tool 26 is attached via track 16, releasing the seal of the suction cups 24, cleaning off the surface area of board 52, track 16 and base 30 of tool 26, and simply relocating it to a different, cleaner part of the table. In this fashion, the user can be assured of using the cutting tool in a clean location, free from bacteria.

[0043] It will be appreciated by persons skilled in the art that the present invention is not limited to what has been particularly shown and described herein above. In addition, unless mention was made above to the contrary, it should be noted that all of the accompanying drawings are not to scale. A variety of modifications and variations are possible in light of the above teachings without departing from the scope and spirit of the invention, which is limited only by the following claims.